

DETAILED ACTION***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

2. Claims 11, and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 11 and 16 define a computer program product embodying functional descriptive material. However, the claims do not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded

on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claims to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Lai et al. USPN 6,175,643 (hereinafter “Lai”).

Regarding claim 1, Lai discloses a method for adjusting an MR image display parameter (col. 1 lines 5-10), said method comprising: selecting at least one MR image from among a plurality of related MR images (representative images in a sequence of MRI image are selected, col. 4 lines 38-54, further seen in figure 2); setting a display

parameter of the at least one selected MR image (user interaction is used to readjust the window width and center for the representative images, col. 4 lines 38-54); generating a first equation based on the set display parameter (the setting from the user interaction are used in order to perform a global mapping of the entire data set wherein the global is an equation, col. 5 lines 26-67); and setting said display parameter for at least one other of said MR images based on the first equation (col. 4 lines 29-54, mapping of the training data according to the adjustments made by the user is carried out).

Regarding claim 2, Lai discloses that one of the display parameters is window width which deals with the brightness (col. 1 lines 27-42, col. 4 lines 29-41).

Regarding claim 3, Lai discloses changing at least one coefficient of the first equation; and resetting the brightness window width of the at least one other of said of MR image based on the changed coefficient (col. 5 line 40-col. 6 line 60).

Regarding claims 4-5, the equation is a quadratic equation (col. 6 line 54).

Regarding claim 6, Lai discloses fitting a linear spline to the user re-adjustment data separately for width and center respectively (col. 7 lines 20-25).

Regarding claim 7, Lai discloses width and center parameters (or brightness and contrast, col. 1 lines 26-42, col. 7 lines 20-25).

Regarding claim 8, Lai discloses fitting a linear spline to the user re-adjustment data separately for width and center respectively (col. 7 lines 20-25).

Regarding claims 9-10, the equation is quadratic (col. 6 line 54).

Regarding claim 11, the method of Lai is carried out on a computer.

Claim 12 is similarly analyzed to claim 1.

Claim 13 is similarly analyzed to claim 6.

Claims 14-15 are similarly analyzed to claims 4-5.

Claim 16 is similarly analyzed to 11.

The limitations of claim 17 are similar to claim 1, thus only limitations which were not addressed above will be addressed here. Claim 17 has the additional limitations of displaying a plurality of related MR images and selecting less than half of the displayed images (figure 2 shows that a sequence of images are displayed and representative images that number less than half of the images are selected) and that first and second equations are used to set the window width and level (as discussed Lai discloses carrying out the display adjustment for the width and center, col. 7 lines 20-25).

Regarding claim 18, the limitations of a static field generating unit, a gradient magnetic field unit, the transceiver unit, and the operation unit are all inherent limitations of an MRI device. The remaining limitations have already been addressed in the rejection of claim 1.

Claim 19 is similarly analyzed to claim 3.

Claim 20 is similarly analyzed to claim 6.

Claim 21 is similarly analyzed to claim 3.

Claim 22 is similarly analyzed to claim 19, as discussed Lai discloses adjusting the window width and center (brightness and contrast).

Claim 23 is similarly analyzed to claim 3.

Claim 24 is similarly analyzed to claim 1.

Claim 25 is similarly analyzed to claim 19.

Claim 26 is similarly analyzed to claim 1.

Claim 27 is similarly analyzed to claim 2.

Claim 28 is similarly analyzed to claim 5.

Claim 29 is similarly analyzed to claim 7.

Claim 30 is similarly analyzed to claim 10.

Claim 31 is similarly analyzed to claim 7.

Claim 32 is similarly analyzed to claim 10.

Regarding claims 33-34, the representative frames are automatically selected from the beginning portion, middle, and end portion of the sequence (col. 5 lines 5-13).

Regarding claim 35, the user adjusts the display parameters manually (col. 5 lines 20-25).

Claim 36 is similarly analyzed to claim 1.

Claim 37 is similarly analyzed to claim 2.

Claim 38 is similarly analyzed to claim 5.

Claim 39 is similarly analyzed to claim 7.

Claim 40 is similarly analyzed to claim 10.

Claim 41 is similarly analyzed to claim 7.

Claim 42 is similarly analyzed to claim 10.

Claims 43-44 are similarly analyzed to claims 33-34.

Claim 45 is similarly analyzed to claim 35.

Claim 46 is similarly analyzed to claim 1.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 5,995,644 Robust and automatic adjustment of display window width and center for mr images.

USPN 5,900,732 automatic windowing method for mr images.

USPN 5,305,204 digital image display apparatus with automatic window level and window width adjustment.

USPN 5,261,050 apparatus for processing a digital image for widow width, level, and curve shape.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN B. STREGE whose telephone number is (571)272-7457. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2624

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/John B Strege/
Temporary Partial Sig. Examiner, Art Unit 2624